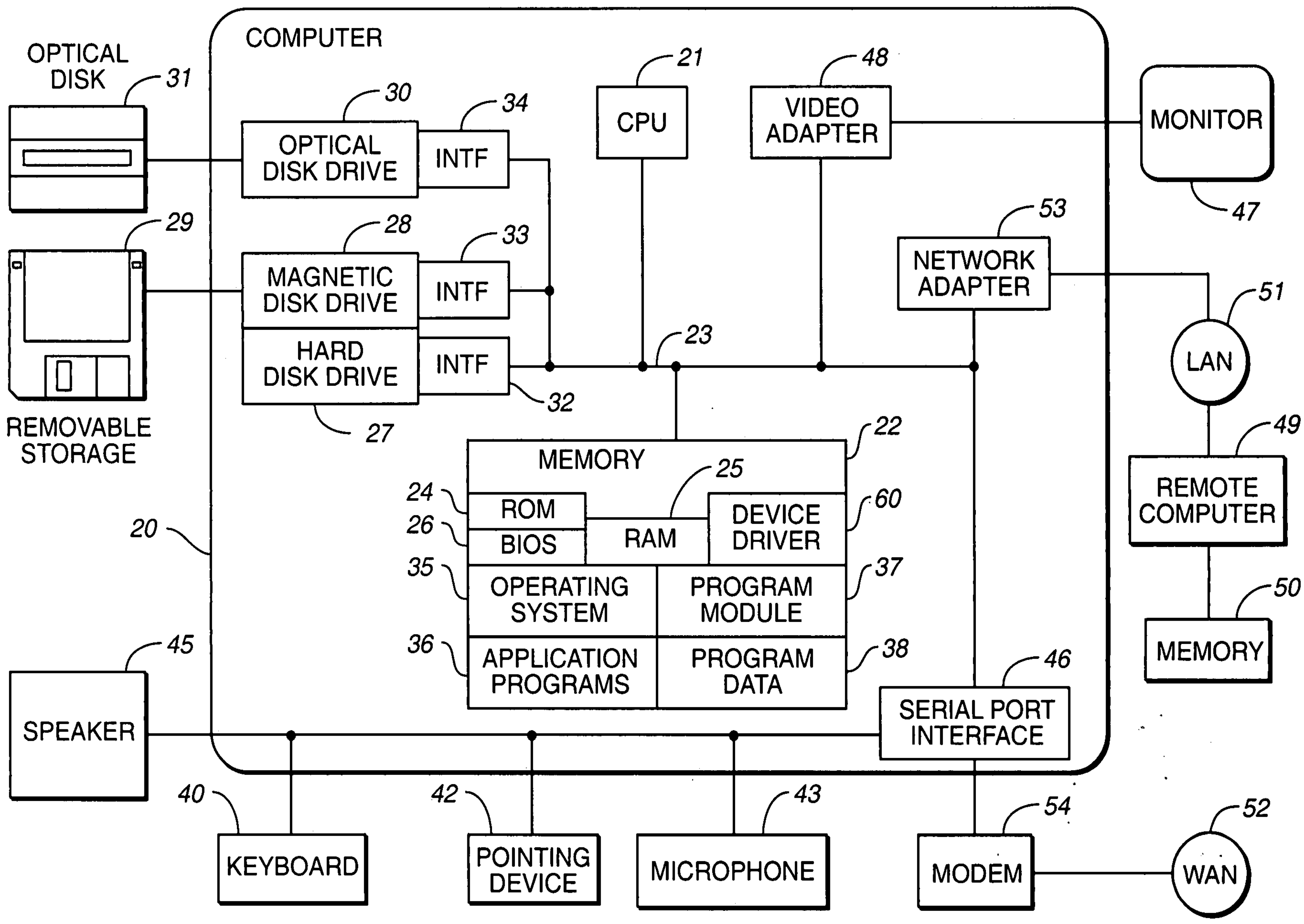
COMPUTER
OPTICAL DISK
31
REMOVABLE STORAGE
29
30
OPTICAL DISK DRIVE
34
INTF
28
MAGNETIC DISK DRIVE
33
INTF
HARD DISK DRIVE
27
INTF
32
CPU
21
VIDEO ADAPTER
48
MONITOR
47
NETWORK ADAPTER
53
23
LAN
51
REMOTE COMPUTER
49
MEMORY
50
MEMORY
22
25
ROM
24
BIOS
26
RAM
DEVICE DRIVER
60
OPERATING SYSTEM
35
PROGRAM MODULE
37
APPLICATION PROGRAMS
36
PROGRAM DATA
38
20
SERIAL PORT INTERFACE
46
SPEAKER
45
KEYBOARD
40
POINTING DEVICE
42
MICROPHONE
43
MODEM
54
WAN
52

FIG._1

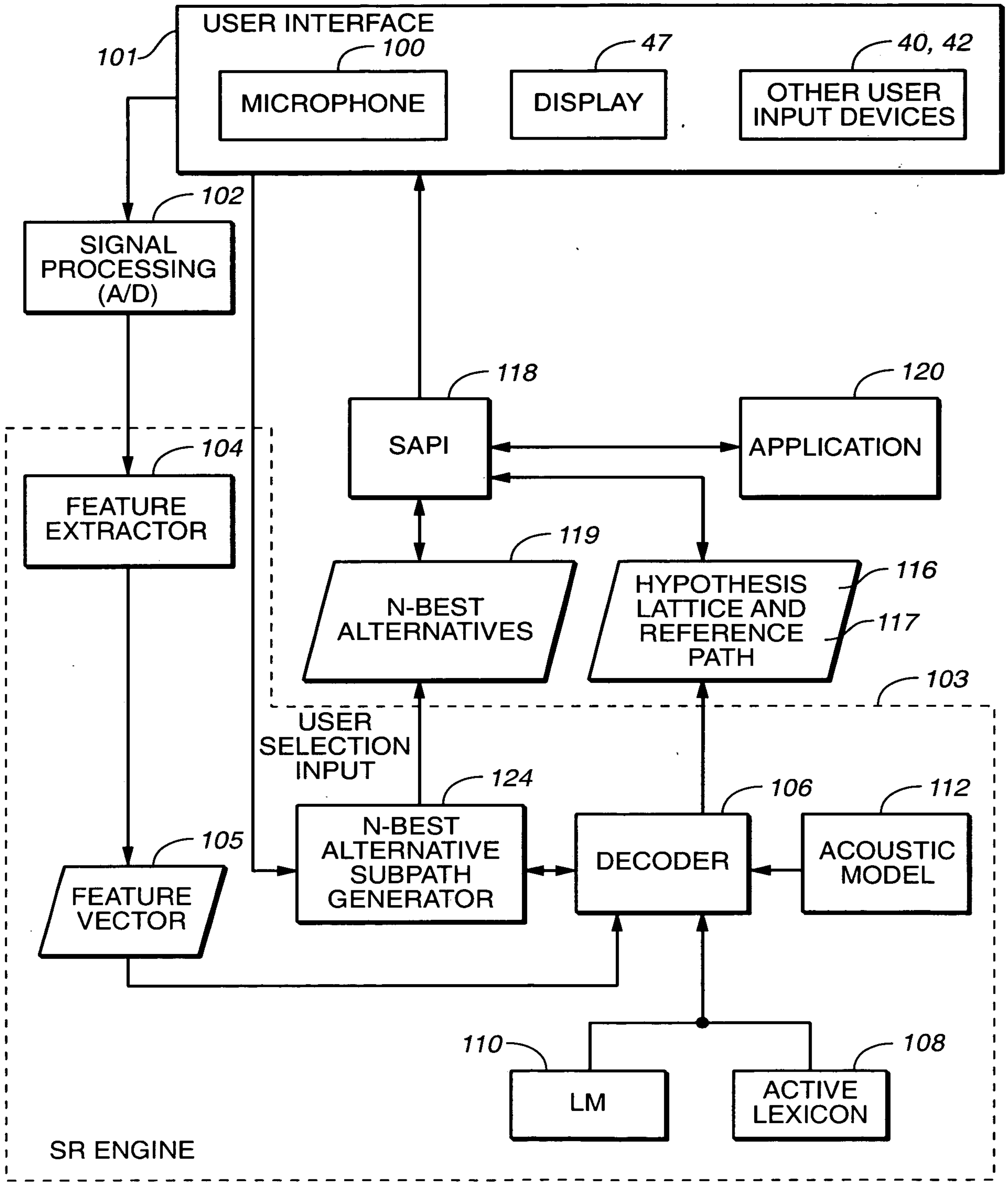

FIG._2

10511117.074090

09804117.021201

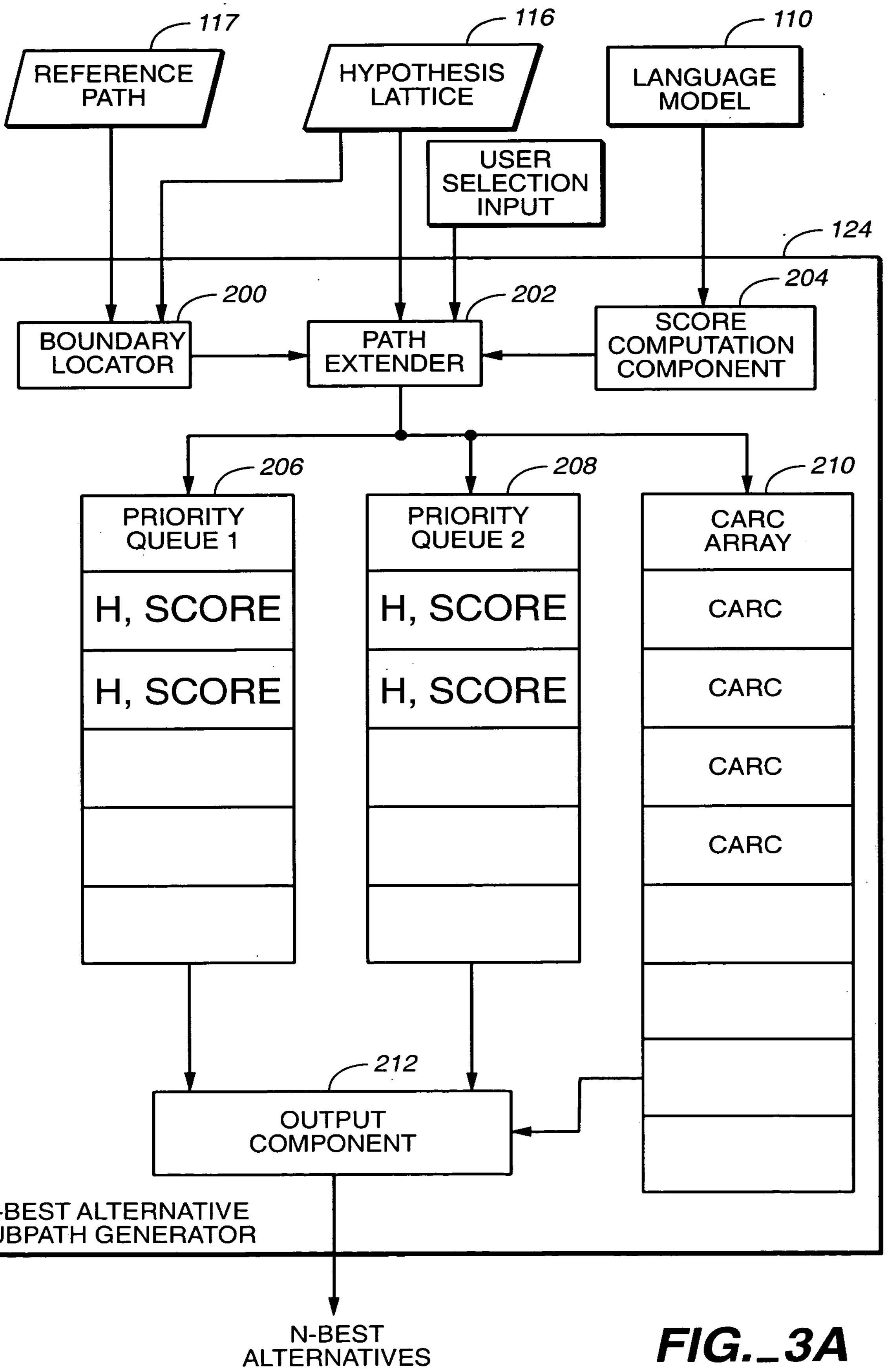

FIG._3A

09804117.071201

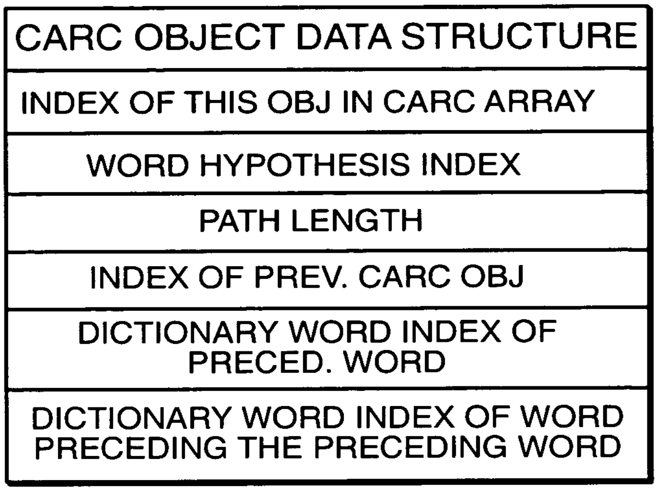
CARC OBJECT DATA STRUCTURE
INDEX OF THIS OBJ IN CARC ARRAY
WORD HYPOTHESIS INDEX
PATH LENGTH
INDEX OF PREV. CARC OBJ
DICTIONARY WORD INDEX OF PRECED. WORD
DICTIONARY WORD INDEX OF WORD PRECEDING THE PRECEDING WORD

FIG._3B

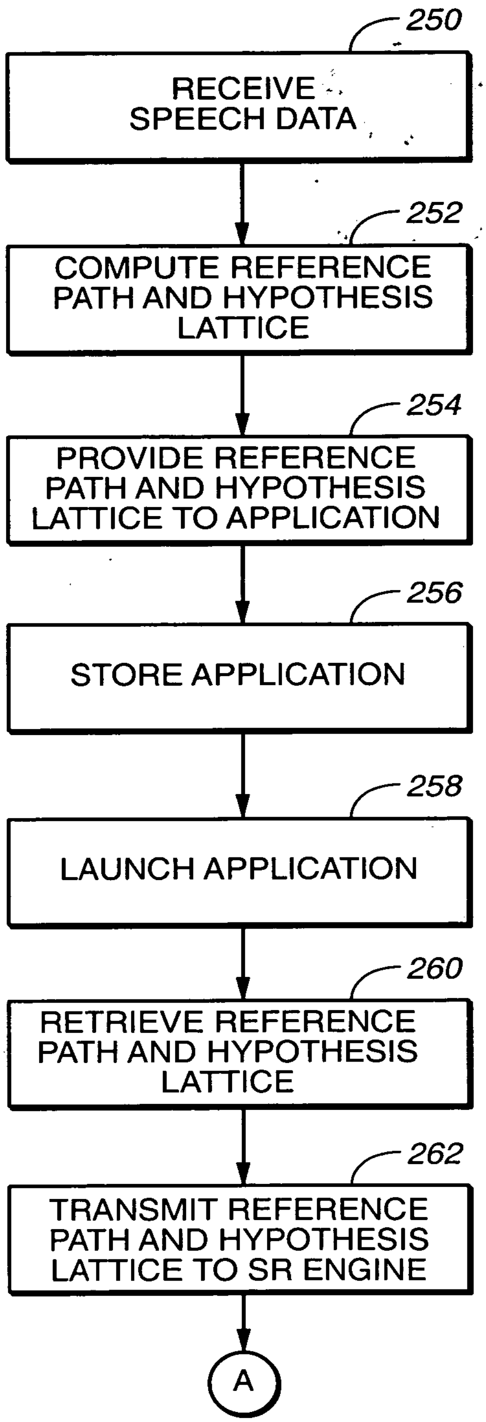
250
RECEIVE SPEECH DATA
252
COMPUTE REFERENCE PATH AND HYPOTHESIS LATTICE
254
PROVIDE REFERENCE PATH AND HYPOTHESIS LATTICE TO APPLICATION
256
STORE APPLICATION
258
LAUNCH APPLICATION
260
RETRIEVE REFERENCE PATH AND HYPOTHESIS LATTICE
262
TRANSMIT REFERENCE PATH AND HYPOTHESIS LATTICE TO SR ENGINE
A

FIG._4A

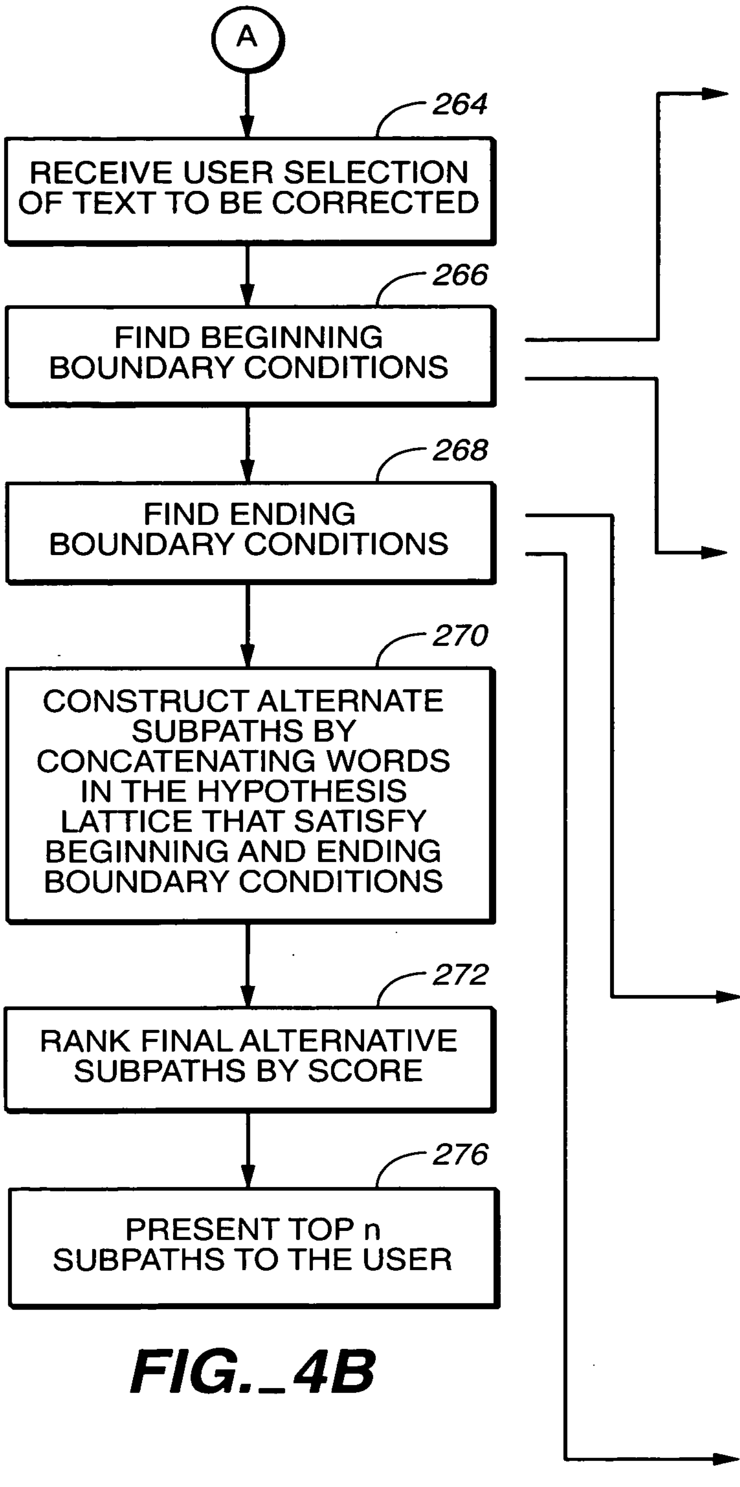
A
264
RECEIVE USER SELECTION OF TEXT TO BE CORRECTED
266
FIND BEGINNING BOUNDARY CONDITIONS
268
FIND ENDING BOUNDARY CONDITIONS
270
CONSTRUCT ALTERNATE SUBPATHS BY CONCATENATING WORDS IN THE HYPOTHESIS LATTICE THAT SATISFY BEGINNING AND ENDING BOUNDARY CONDITIONS
272
RANK FINAL ALTERNATIVE SUBPATHS BY SCORE
276
PRESENT TOP n SUBPATHS TO THE USER

FIG._4B

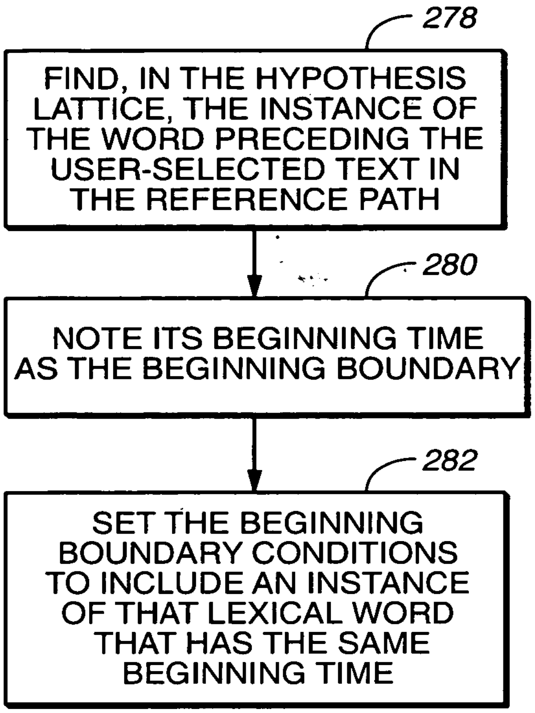
278
FIND, IN THE HYPOTHESIS LATTICE, THE INSTANCE OF THE WORD PRECEDING THE USER-SELECTED TEXT IN THE REFERENCE PATH
280
NOTE ITS BEGINNING TIME AS THE BEGINNING BOUNDARY
282
SET THE BEGINNING BOUNDARY CONDITIONS TO INCLUDE AN INSTANCE OF THAT LEXICAL WORD THAT HAS THE SAME BEGINNING TIME

FIG._5

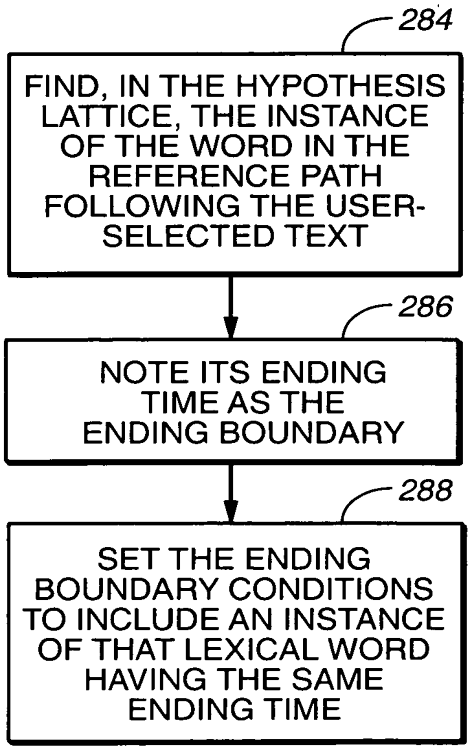
284
FIND, IN THE HYPOTHESIS LATTICE, THE INSTANCE OF THE WORD IN THE REFERENCE PATH FOLLOWING THE USER-SELECTED TEXT
286
NOTE ITS ENDING TIME AS THE ENDING BOUNDARY
288
SET THE ENDING BOUNDARY CONDITIONS TO INCLUDE AN INSTANCE OF THAT LEXICAL WORD HAVING THE SAME ENDING TIME

FIG._6

09604417.071201

09804117.071201

FIG._7A

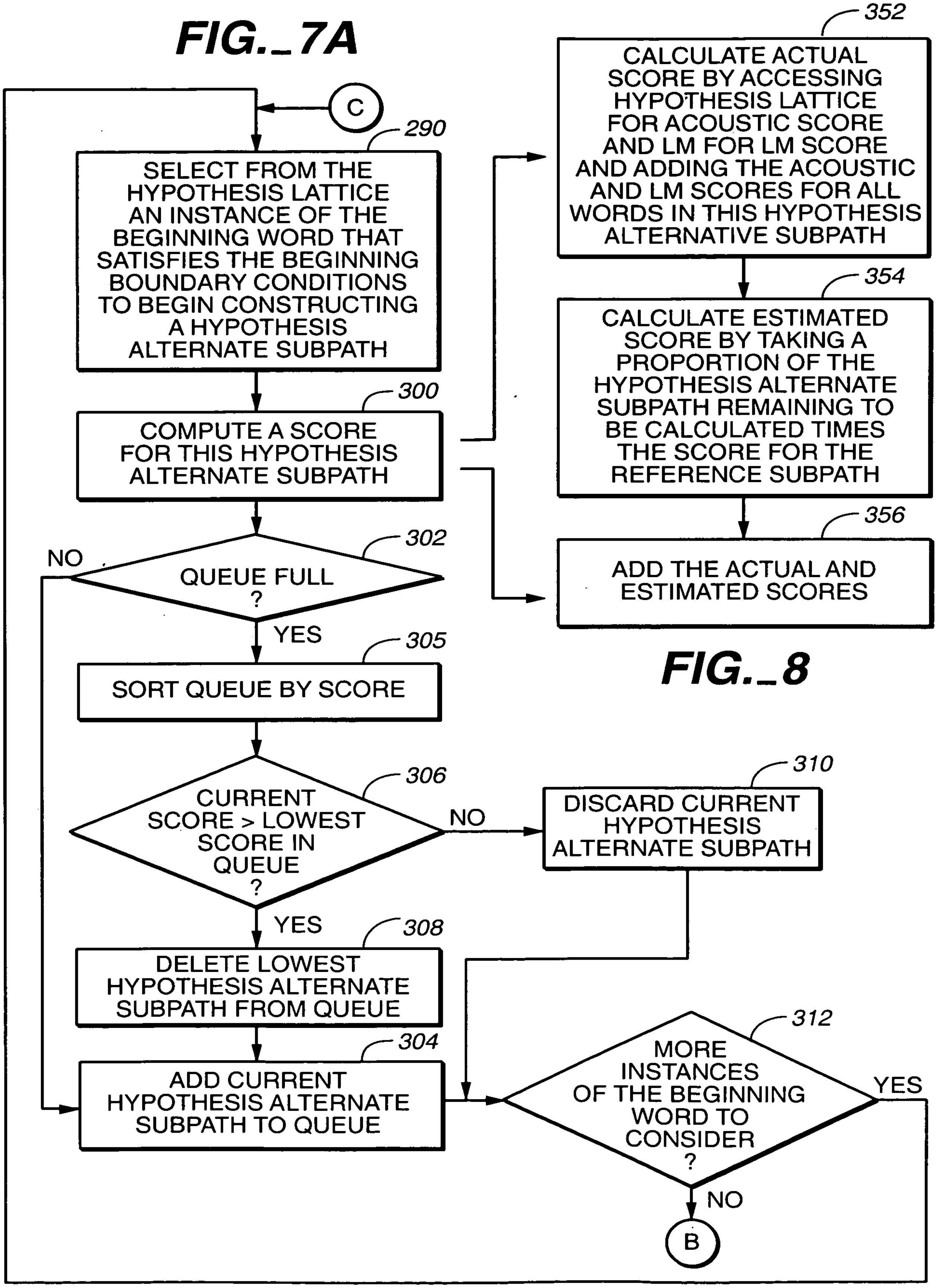
C
290
SELECT FROM THE HYPOTHESIS LATTICE AN INSTANCE OF THE BEGINNING WORD THAT SATISFIES THE BEGINNING BOUNDARY CONDITIONS TO BEGIN CONSTRUCTING A HYPOTHESIS ALTERNATE SUBPATH
300
COMPUTE A SCORE FOR THIS HYPOTHESIS ALTERNATE SUBPATH
302
QUEUE FULL ?
NO
YES
305
SORT QUEUE BY SCORE
306
CURRENT SCORE > LOWEST SCORE IN QUEUE ?
NO
YES
310
DISCARD CURRENT HYPOTHESIS ALTERNATE SUBPATH
308
DELETE LOWEST HYPOTHESIS ALTERNATE SUBPATH FROM QUEUE
304
ADD CURRENT HYPOTHESIS ALTERNATE SUBPATH TO QUEUE
312
MORE INSTANCES OF THE BEGINNING WORD TO CONSIDER ?
YES
NO
B
352
CALCULATE ACTUAL SCORE BY ACCESSING HYPOTHESIS LATTICE FOR ACOUSTIC SCORE AND LM FOR LM SCORE AND ADDING THE ACOUSTIC AND LM SCORES FOR ALL WORDS IN THIS HYPOTHESIS ALTERNATIVE SUBPATH
354
CALCULATE ESTIMATED SCORE BY TAKING A PROPORTION OF THE HYPOTHESIS ALTERNATE SUBPATH REMAINING TO BE CALCULATED TIMES THE SCORE FOR THE REFERENCE SUBPATH
356
ADD THE ACTUAL AND ESTIMATED SCORES

FIG._8

FIG._7B

09804117.071201

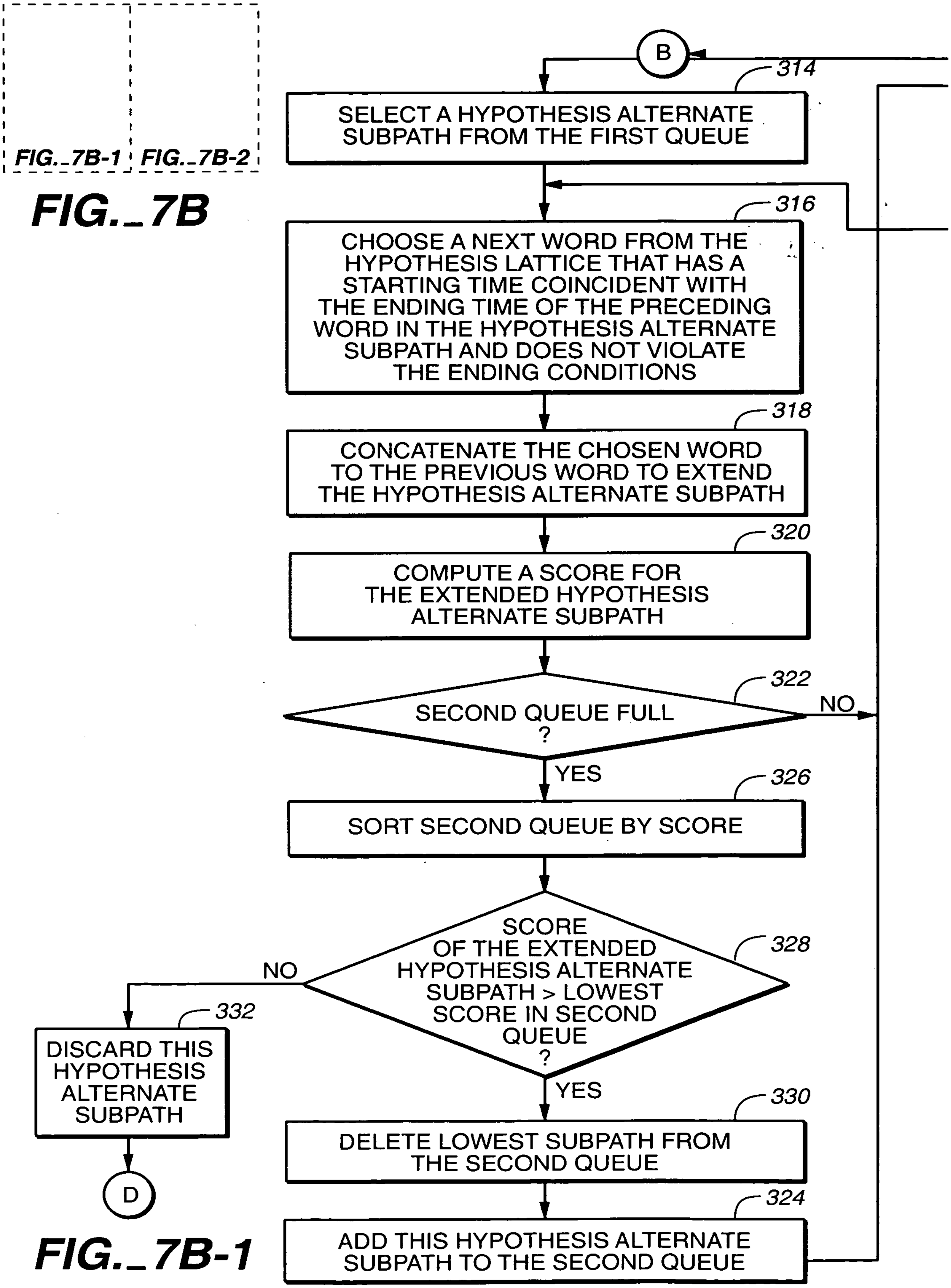
B
314
SELECT A HYPOTHESIS ALTERNATE SUBPATH FROM THE FIRST QUEUE
316
CHOOSE A NEXT WORD FROM THE HYPOTHESIS LATTICE THAT HAS A STARTING TIME COINCIDENT WITH THE ENDING TIME OF THE PRECEDING WORD IN THE HYPOTHESIS ALTERNATE SUBPATH AND DOES NOT VIOLATE THE ENDING CONDITIONS
318
CONCATENATE THE CHOSEN WORD TO THE PREVIOUS WORD TO EXTEND THE HYPOTHESIS ALTERNATE SUBPATH
320
COMPUTE A SCORE FOR THE EXTENDED HYPOTHESIS ALTERNATE SUBPATH
322
SECOND QUEUE FULL ?
NO
YES
326
SORT SECOND QUEUE BY SCORE
328
SCORE OF THE EXTENDED HYPOTHESIS ALTERNATE SUBPATH > LOWEST SCORE IN SECOND QUEUE ?
NO
332
DISCARD THIS HYPOTHESIS ALTERNATE SUBPATH
D
YES
330
DELETE LOWEST SUBPATH FROM THE SECOND QUEUE
324
ADD THIS HYPOTHESIS ALTERNATE SUBPATH TO THE SECOND QUEUE

FIG._7B-1

09804117 .071201

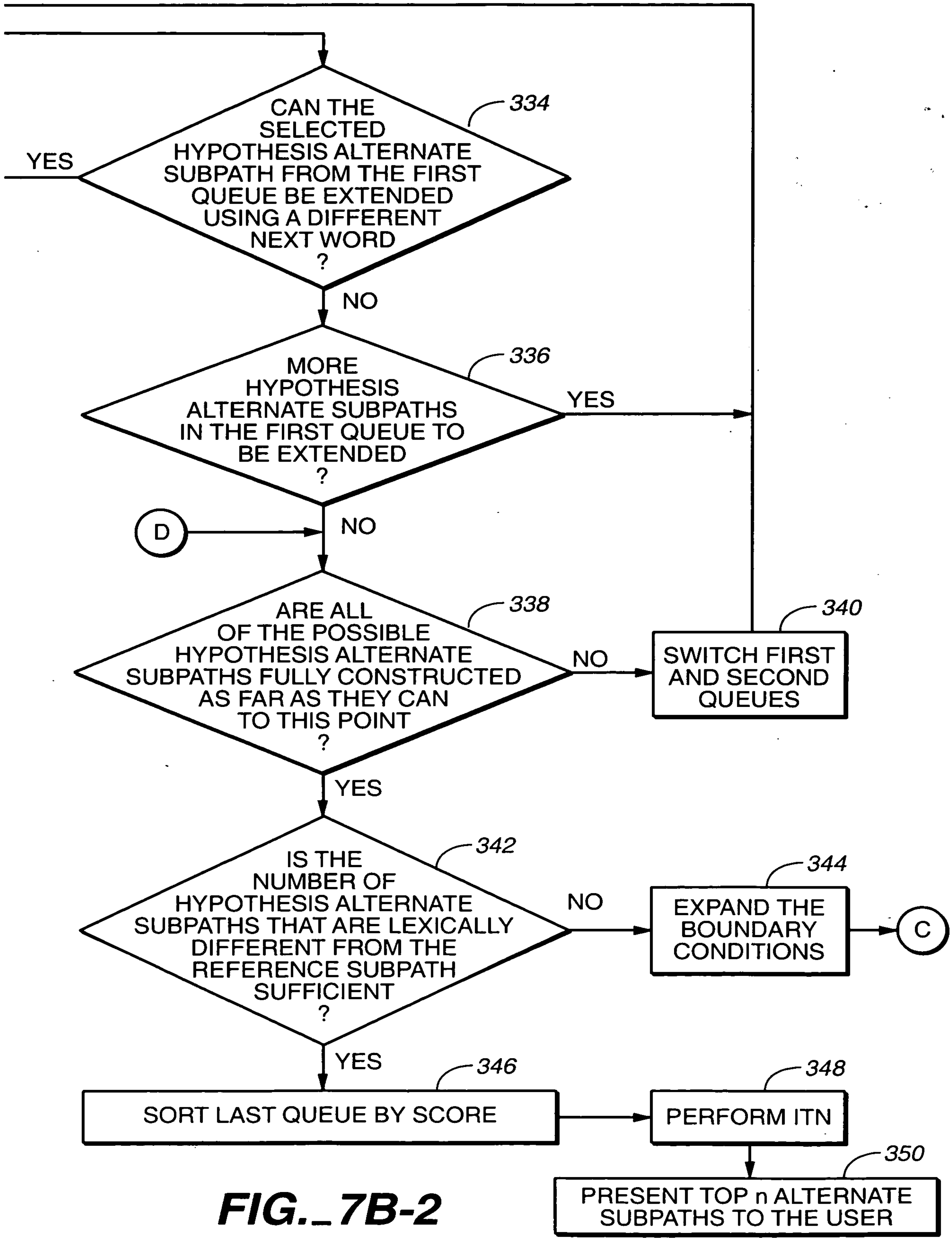
CAN THE SELECTED HYPOTHESIS ALTERNATE SUBPATH FROM THE FIRST QUEUE BE EXTENDED USING A DIFFERENT NEXT WORD ?
334
YES
NO
MORE HYPOTHESIS ALTERNATE SUBPATHS IN THE FIRST QUEUE TO BE EXTENDED ?
336
YES
D
NO
ARE ALL OF THE POSSIBLE HYPOTHESIS ALTERNATE SUBPATHS FULLY CONSTRUCTED AS FAR AS THEY CAN TO THIS POINT ?
338
NO
SWITCH FIRST AND SECOND QUEUES
340
YES
IS THE NUMBER OF HYPOTHESIS ALTERNATE SUBPATHS THAT ARE LEXICALLY DIFFERENT FROM THE REFERENCE SUBPATH SUFFICIENT ?
342
NO
EXPAND THE BOUNDARY CONDITIONS
344
C
YES
SORT LAST QUEUE BY SCORE
346
PERFORM ITN
348
PRESENT TOP n ALTERNATE SUBPATHS TO THE USER
350

FIG._7B-2